CHAPTER 7. OTHER MANAGEMENT PRACTICES

7-1. General. This section deals with such tools of fish and wildlife management as laws; refuges and sanctuaries; population control, including predators other than those discussed in chapter 8.; winter feeding; stocking and restocking; introduction of exotics; and put-and-take hunting and fishing. This section considers nongame species and nonconsumptive uses of fish and wildlife as well as game species. The positive values of the above tools in complementing and supplementing habitat management are discussed along with their limitations. Means of enhancing the recreational and other values of fish and wildlife are discussed also.

7-2. Laws and Regulations. Laws for protecting and controlling fish and wildlife are discussed in chapters 8. and 9. In this section, the emphasis is on regulating the harvest of game species and protecting nongame species to enhance their recreational and other values and to protect the public interest. Regulations on military installations are within the limitations of the laws passed by respective states or the Federal government. The commander may further restrict the fish and wildlife to be harvested, but cannot extend the season or liberalize the bag or creel limits without approval of the responsible state or Federal authorities. On installations, one problem may be an inability to obtain the legally or biologically permitted game harvest due to security and safety restrictions. Other problems may be distributing the harvest as equitably as possible and assuring that hunting does not interfere unnecessarily with nonconsumptive benefits derived by birdwatchers, hikers, campers, and others. Installation regulations should seek to prevent habitat damage and undue disturbance and harassment of nongame species.

7-2.1. Hunting Harvests. Harvest by hunters is often much less than what is biologically feasible. For example, in Our Wildlife Legacy (app B, No. 2) it is reported that studies in Michigan indicated up to 90 percent of the cock pheasants could be harvested without endangering the following year's production, and in suitable habitat with a reasonable amount of escape cover, legal hunting practically never results in overshooting of the cocks. Although the percentages of game populations considered biologically safe to harvest vary with species and location, studies have indicated that up to two-thirds of the fall population of cottontails and up to approximately one-half of the squirrels may be harvested without harm to succeeding crops of these animals. Other studies have indicated that annual populations of bobwhites on similar areas, whether hunted or not, were much the same, and that in the case of ruffed grouse, there often would be an allowable kill twice the 15 to 20 percent likely to be taken by hunters. In the case of deer, it has been found that in many areas it is necessary to shoot both bucks and does or to have special doe hunting seasons to keep the herds under control.

7-2.2. Trapping Harvests. It is necessary to control populations of coyotes, fox and feral animals that spread rabies. These animals have no natural enemies preying upon them throughout their life span, as many other species do. The fox preys upon ground nesting species such as quail and rabbits. The coyote preys upon deer fawns and thereby affect hunting success. The beaver and muskrat damage or disrupt, drainage facilities by burrowing into impoundments and by blocking outlet structures causing excessive loss of timberland and damage to roads. Trapping should be considered as a source of income and recreational activity in addition to providing population control. The trapping on military lands is accomplished in accordance with state regulations.

7-2.3. Fishing Harvests. Although not applicable to put-and-take fishing, sport fishing with hook and line is so ineffective that ample brood stock generally is present regardless of the fishing intensity. However, fishing regulations do help provide a fair distribution of the fishing and fish crop and may be necessary for limiting the type of gear used. A major problem on installations is likely to be maintaining a proper balance between pan, rough, or forage fish and the carnivores like bass, trout, and pike. In addition to fish population control measures, it may be possible to make the annual surplus of pan fish more available to youths through fishing derbies and modified regulations. For predatory or carnivorous game fish, it may be necessary to impose stricter limitations in order to avoid excessive harvest in small ponds. Regulations covering allowable take, within the limitations of the military mission, and provision of access by roads, piers, boat-launching sites, etc., may help maintain fish population balance and increase recreational benefits.

7-3. Refuges and Sanctuaries.

7-3.1. Definitions. Wildlife refuges may be defined as areas designated for the protection of wildlife and within which hunting and fishing are either prohibited or strictly controlled. They may protect wildlife habitat that might otherwise be used and altered. When properly selected and administered, refuges insure the perpetuation of breeding stocks of the animals they seek to protect. Also, they may constitute areas from which game or other animals can disperse to restock and to be hunted or enjoyed in surrounding areas. Wildlife sanctuaries are similar to refuges but usually afford more protection from man. Hunting, fishing, and collecting specimens may be prohibited. The term, "hunting preserve", may be applied to land or water managed primarily for hunting.

7-3.2. Management. Refuges and sanctuaries may have a place in wildlife management on some installations. Often, refuges are the sites of large concentrations of waterfowl or other wildlife populations which can provide recreational benefits for bird-watchers or other non-consumptive users without harming fish and wildlife resources. On the other hand, too many visitors, without proper control, can negate the purpose of a refuge. Snowmobile and other off-road vehicle trails should be kept away from winter deer yards and other sensitive areas, such as marshes, to avoid disturbing deer, ducks and marsh birds. Installations must coordinate the possible establishment of refuges and sanctuaries with the appropriate military command and the Fish and Wildlife Service.

7-3.2.1. Waterfowl Refuges. Refuges within the breeding ranges of waterfowl can provide good nesting and brood-rearing areas. Refuges within the primary flyways or within waterfowl wintering areas provide resting sites during migration or wintering sites. Additionally, however, if waterfowl populations and other circumstances permit, they provide a source of birds for hunters when the birds fly to surrounding areas to feed. Wild waterfowl will not tolerate harassment for long and will leave abundant feed and attractive water behind if disturbed too often by shooting, people, vehicles, or dogs. On the other hand, an attractive site, free of disturbances, can be the focal point for concentrations of ducks and geese which return year after year. As described in Practical Wildlife Management (app B, No. 15) a 9-acre pond and a few acres of surrounding fields, fenced against trespass by both people and animals, attract and hold thousands of Canada geese every winter at Remington Farms, Maryland. The sanctuary principle applies not only to areas where bird-watching is a goal but also to areas where improved hunting is a primary objective.

7-3.2.2. Other Refuges. Often, in refuges established primarily for waterfowl, other species of wildlife become abundant. For nonmigratory wildlife with a small home range, refuges may not be particularly valuable in providing breeding stock for the surrounding countryside; therefore, excess populations of deer, rabbits, squirrels, upland game birds, or fur animals can be harvested by hunting or trapping. Aside from the restrictions on land use or hunting which may be in effect in refuges, the habitat management or predator control favoring certain species may be more intensive than elsewhere. The bald eagle now gone or threatened in some regions where it once occurred in substantial numbers, can be afforded necessary protection in wildlife sanctuaries (fig 7-1).

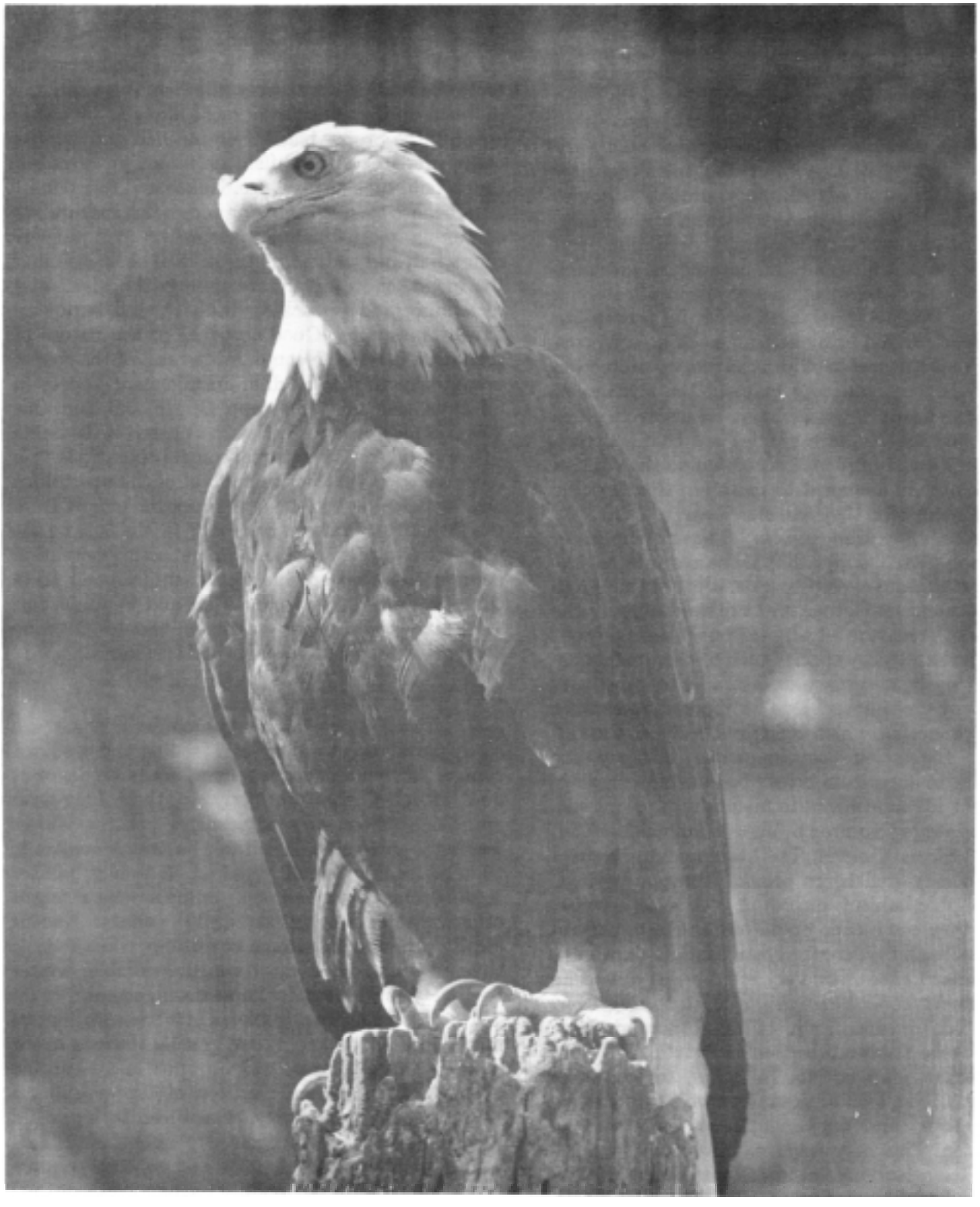

Figure 7-1. Bald eagle.

7-4. Population Control.

7-4.1. Natural regulation of Animal Numbers. Wild animal populations are regulated by both natural and man-contrived means. The Natural Regulation of Animal Numbers (app B, No. 56) develops the following principles: reproductive rates in wild animals are a product of natural selection and are as efficient as possible; reproductive rates may vary with population density, but the main density-dependent control of numbers probably comes through variations in the death rate; critical mortality factors are food shortage, predation, and disease, one of which may be paramount although they often react together; preservation of rare and attractive animals is achieved either by preventing human destruction or by setting aside an area containing their natural habitat as a reserve; protection of animals from shooting may, in the absence of predators, result later in huge losses from starvation; and certain rare species are confined to a temporary stage in plant succession so that unless their habitat is managed to maintain that specific stage of succession they will disappear.

7-4.2. Need for Management. The principles in paragraph 7-4.1. imply that if man wants to preserve certain endangered species, it is not enough to set aside areas and let nature take its course. In the absence of predators which previously were present and helped keep prey species such as deer under control, it may be necessary or desirable to substitute harvest by the hunter. Due to modern forest fire control programs, which keep fires in check, thus affecting vegetation development, it may be necessary to substitute prescribed burning or selective herbicide treatments to maintain the plant successional stages required by certain animals.

7-4.3. Predator Control. The best predator control program may well be to provide the prey species with suitable habitat, including good escape cover, so that they can escape predators. Predator control on a continuing, year-after-year basis is expensive and, in many cases, not very effective as a wildlife management tool. There are situations, however, where predator control is justified, at least on a temporary basis. Studies described in Practical Wildlife Management (app B, No. 15) show, for example, that drastic removal of predators which take eggs, nesting hens, and ducklings increases waterfowl production. This may require, therefore, removing skunks from land-nesting areas and snapping turtles from brood-rearing areas. Trapping can be used to control skunks, while large fish hooks that are baited with chunks of meat or fish and rigged on lengths of heavy cord tied to a stake can be used to capture turtles.

7-4.4. Selective Animal Control. Animal control to reduce competition from nuisance species, carried on with skill, can result in a higher production of more desirable species, especially fish. With fish, the problem on installations is most likely to be either keeping the proper balance of pan fish and bass or other predatory game fish, or removing so-called rough fish, such as carp, from lakes and fish ponds. Approaches toward removing rough fish include: encouraging more fishing pressure on pan fish or rough fish and restricting the take of bass; draining the pond or reservoir; removing the fish, and reclaiming and restocking the site; and removing fish by poisoning. Good accounts of the nature of predation in wildlife communities and of the role of predator control in wildlife management appear in Of Predation and Life (app B, No. 33) and Our Wildlife Legacy (app B, No. 2). When it is desirable to engage in selective animal control operations, it is recommended that both approval of the operations and technical advice or assistance be sought from the Fish and Wildlife Service (app C, No. 6c) and the respective state fish and game or conservation department. Cooperative agreements among state conservation agencies, the Fish and Wildlife Service, and military installations should describe arrangements for such advice and assistance.

7-5. Winter Feeding.

7-5.1. Relation to Other Approaches. There are many parallels between winter feeding and predator control for wildlife management. Less credence is now attached than formerly to their long-term value. As in the case of predator control, winter feeding is expensive. If suitable habitat is available, usually feeding is not required. However, winter feeding may enable a few animals which might otherwise starve to get through the winter. Except locally and under extreme conditions when food is covered with ice or snow and unavailable, winter feeding is not feasible for game management.

7-5.2. Problems. The problems of winter feeding are manifold. In addition to cost, getting the feed to the animals in large areas and in time is almost impossible. Also, animals concentrating around artificial feeding sites may be subject to increased predation and may become dependent upon continued handouts which may not be forthcoming. Many animals cannot readily change types of food due to the lack of enzymes to fully digest the food.

Deer have died near winter feeding stations with stomachs full of undigested foods.

7-6. Restocking Fish and Wildlife.

7-6.1. Carrying Capacity. Another management approach is restocking areas which once supported certain fish and wildlife species or stocking areas which are suitable for species not currently present or in the desired numbers. Although some restocking efforts have been effective, as in the cases of beaver and wild turkey, many attempts have not been. Stocking or restocking should occur only after careful studies have been made of habitat conditions. If a remnant population of a species appears in an area, the existing population is probably all the area will support. When a species native or endemic to one area of the United States is considered for release in another part of the country, detailed investigation of the habitat requirements of that species should be made and related to the habitat into which it is to be released. Consideration should be given to possible conflicts with other species, damage which may be inflicted on crops, and possible introduction of wildlife diseases. Although there are instances of notable success in releasing species from one part of the country into another, as in the cases of brook trout from the East to the West or of rainbow trout and coho salmon from the Pacific drainages to the East, most attempts have failed.

7-6.2. Stocking Fish Ponds and Streams. Stocking fish is a common practice on military installations, usually in cooperation with or upon the advice and approval of the respective state conservation department and regional office of the Fish and Wildlife Service (app C, No. 6c). Rearing channel catfish is also common on installations in the South. Technical advice and approval should be sought even when stocking native species. The roles of the Fish and Wildlife Service, the state conservation department, and the installation should be outlined in a cooperative agreement.

7-7. Introduction of Exotic Species.

7-7.1. Potential Problems. The same general principles governing the stocking or release of native species apply to the introduction of exotic species. Even more care must be taken to avoid dire consequences, such as crowding out native species, introducing new diseases or parasites, causing economic losses to crops, or creating unfavorable effects on the habitat. Recently, there has been considerable interest in the introduction into United States waters of grass carp or white amur as a biological means to control aquatic vegetation. This has proven unsuccessful in most situations however, and by 1977, has been restricted or outlawed in 35 states. Introduction of exotics generally should be discouraged.

7-7.2. Established Exotics. Most attempts to introduce desirable game species have failed. However, some species, such as the ring-necked pheasant, the Hungarian or gray partridge, and Chukar partridge, have been relatively successful. These species can be treated much like native species if the stock is obtained from populations already existing in the United States.

7-7.3. Legal Restrictions. Introduction of exotic animals is strictly controlled by the Federal Government. The animals must be held in quarantine before release as a protection against introduction of disease. No fish, wild mammal, or bird should be introduced on an installation without prior written approval of both the military and the Fish and Wildlife Service. A statement to this effect should be included in any fish and wildlife management cooperative agreement.

7-8. Put-and-take-Hunting and Fishing. In the absence of habitat sufficient to provide populations large enough to meet the demand for fishing and hunting, put-and-take programs may be implemented. Put-and-take programs involve the release of fish or wildlife into designated areas shortly before they are to be harvested. Usually, there is little holdover of wildlife after the harvest season due to a lack of suitable habitat or cover. Therefore, where suitable, management activities should be directed toward improvement of habitat, rather than toward put-and-take programs. To simulate fishing or hunting under anything like natural conditions is not easy, and technical advice should be sought. Information on shooting preserve management appears in Shooting Preserve Management—The Nilo System (app B, No. 55). Additional information can be obtained from the North American Game Breeders and Shooting Preserve Operators Association (app C. No. 9).

7-9. Nonharvest Aspects of Wildlife Management.

7-9.1. Need for Attention. Although the emphasis has been on game species management, there is a growing interest in the nonconsumptive aspects of wildlife management, including the welfare of and the recreational benefits from songbirds and other nongame species. Although habitat management for game species often benefits nongame species,

there are many opportunities to do more, especially within developed areas.

7-9.2. Opportunities for Management.

7-9.2.1. Building Areas. The areas of installations used for dwellings and office quarters could be improved for wildlife by maintaining a greater diversity of vegetation, less short-clipped grass, more shrubs with special food and cover value for wildlife, and where possible, mixtures of coniferous and deciduous trees. Even a few weeds or unharvested crops left along fences or in gardens can be useful. Backyard pools or other sources of water help attract wildlife, and birdhouses may attract bluebirds, wrens, or other species. Additional guidance and suggestions can be found in "Invite Wildlife to Your Backyard" (app B, No. 107), Landscaping for Birds (app B, No. 13), Homes for Birds (app B, No. 22), and Songbirds in Your Garden (app B, No. 106). Information on attracting birds and other wildlife to developed areas can be obtained from the Fish and Wildlife Service (app C, No. 6c) National Wildlife Federation (app C, No. 8), National Audubon Society (app C, No. 7), and local Audubon and natural history organizations. Preserving open space, saving wetlands from drainage, creating wetlands or ponds, and avoiding unnecessary channelization of streams in developed areas of installations benefit wildlife, including fish, reptiles, and amphibians.

7-9.2.2. Road Areas. Roadways should be planned and maintained with more consideration of wildlife. Construction can be accomplished with less impact on the environment if routes are selected which do not necessitate wetland drainage or stream channelization. Vegetation along roads, including landscape planting and mowed areas (in terms of mowing frequency and width), can be managed to enhance conditions for small birds and other wildlife that do not constitute a hazard to vehicular traffic and are enjoyed by travellers. For example, leaving some dead trees along roadways to serve as perching sites for hawks can contribute to recreational benefits. Both ponds created from borrow pits for sand and gravel and wetlands formed by fills across drainage during highway construction can be maintained as fish and wildlife areas.

7-9.3. Additional Benefits. Increased enjoyment and appreciation of wildlife may result from the construction of observation blinds, viewing towers, or pull-off parking sites which overlook marshes or other areas of wildlife concentration. Well-designed nature trails, with appropriate informational signs, can serve as educational tools and arouse interest in conservation. The entrance to a nature trail should be conspicuous enough to attract attention. The route should vary as much as possible and should be designed as a loop or figure-eight so that the user returns near the starting point after walking approximately one-half mile. Trails should avoid steep grades that are tiring and result in erosion; they should be laid out along existing contour lines if possible. Raised footpaths should be used across wet spots or areas that may be flooded. Persons well-versed in natural history should be invited to go over the area during trail selection to identify interesting features. Their assistance can ensure factual information for signs, labels, and interpretive leaflets and can assist in conservation of the resource. For example, signs explaining why box turtles, which frequently are collected in large numbers along nature trails by children, should not be collected, help conserve this species for others to enjoy. How to Build a Nature Trail (app B, No. 70) provides additional information.

7-10. Funding and Equipment.

7-10.1. Need. In some instances, habitat management for wildlife is accomplished in connection with forest management or grounds maintenance operations. Equipment obtained for other activities on an installation may be used occasionally for habitat management work. Although, with good planning, coordination, and cooperation, much can be accomplished in this way, the extent and effectiveness of habitat management will be increased as more funds are made available for fish and wildlife programs specifically, and when certain types of equipment such as brush hogs, heavy discs, plows, tractors, drills, and chain saws are available when needed.

7-10.2. Use Permits. The sale of permits for fishing and hunting and other recreation activities is an excellent means of providing funds for expanding these programs. Reference AR 420-74/DA PAM 420-7/AFR 126-1/NAVFAC INST. 11015.4/MCO P11000.8 (app A) for guidelines relating to permits, fees and licenses.